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EXTRACT FROM A LETTER FROM OTTO STRUVE.

[The following is an extract from a letter which I have recently received from OTTO STRUVE. It is of interest, in giving his latest views respecting the desirability of obtaining the systematic corrections of double-star measures by the observation of artificial double stars.—W. J. HUSSEY.]

KARLSRUHE, 1901, October 27.

Dear Sir:—Accept my heartiest and sincerest thanks for your observations of and treatise on the Otto Struve stars, which you have most kindly sent to me in volume V of the *Publications* of the Lick Observatory. The consistent and rapid execution of the work, both in respect to making the observations and in the collection of those made by other observers, awakens my full astonishment. I have read your introduction through carefully with lively interest, and I thank you for it. What you have said in it about the systematic errors in my measures and the corrections for the same, which I occupied myself so long to ascertain, has my full assent. But in this connection it has occurred to me that I have not perhaps expressed myself clearly enough in my publications on this subject to the effect that I myself am of the opinion that the correction formulas, which are given by the mean results of the many years of effort to determine the systematic errors, may perhaps not be equally applicable to all periods of my measures. It seems to me probable that my measures experienced a marked inexplicable change not only about 1843, but that they also changed more or less at intervals during the half-century over which they extend, possibly corresponding to physical conditions. The existing materials — the measures of artificial double stars — are unfortunately not sufficient to trace out such changes. For my own measures it is not possible to obtain this certainty. But it lies near to my thoughts to call the attention of future observers to such changes and to recommend them to follow your example, to limit sharply the programme of measures, to complete it in the shortest possible time, and in the same period to determine also the systematic errors by the measurement of artificial double stars.

. . . .

In closing this letter I must ask your pardon that in answering your letter I make use of my mother-tongue, the German. Formerly it was very easy for me to write English and to speak it, but now it would be a severe task for a man standing in his eighty-third year.

Receive, dear sir, with my thanks my heartiest wish that you may be permitted to enrich astronomy many fold through similar works.

OTTO STRUVE.

NEW DOUBLE STARS. *

For somewhat more than two years I have devoted a portion of my time to the examination of large numbers of stars in various parts of the sky for the purpose of detecting hitherto unknown double stars. This search has resulted in the discovery of five hundred new pairs, having distances under five seconds of arc. These new pairs are being announced, a hundred at a time, as rapidly as sets of measures for them can be obtained. Observations of three hundred have already been published, and those of a fourth hundred are now in the hands of the printers.

The following table gives the classification of the stars with respect to the distances between their components:—

	1st Cat.	2d Cat.	3d Cat.	4th Cat.	Total.
0″.25 or less	3	9	5	13	30
0 .26 to 0″.50	12	16	12	30	70
0 .51 to 1 .00	24	22	20	24	90
1 .01 to 2 .00	29	26	25	18	98
2 .01 or more	32	27	38	15	112

According to this table 72 per cent. of these four hundred pairs have distances not exceeding 2″; 48 per cent. not exceeding 1″; and 25 per cent. not exceeding 0″.5.

I have endeavored to conduct my search for new pairs in a systematic manner, and in the end it is hoped that the work will afford considerable data concerning the distribution of the close double stars in various parts of the sky and of their numbers in respect to magnitude and in proportion to the total number of stars examined.

In examining large numbers of stars with high powers under good atmospheric conditions in various parts of the sky, one is impressed with the fact that the close double stars, say those having distances under 5″, are not distributed over the celestial sphere strictly proportionally to the number of stars to a given magnitude, say 9.1. In some places one may examine all the stars to this magnitude over a large area without finding any new

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* From Lick Observatory Bulletin No, —.